**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

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|---|---|---|---|
| Applicant: | Sivaramakrishna Kolachina, et al. | Docket No: | TI-34625 |
| Serial No: | 10/620,546 | Conf. No: | 8435 |
| Examiner: | TBD | Art Unit: | 2829 |
| Filed: | 07/16/2003 | | |

For: FOCUSED ION BEAM ENDPOINT DETECTION USING CHARGE PULSE DETECTION ELECTRONICS

## REQUEST FOR CORRECTED FILING RECEIPT

Commissioner For Patents
Filing Receipt Corrections
Initial Patent Examination Division
P.O. Box 1450
Alexandria, VA 22313-1450

**MAILING CERTIFICATE UNDER 37 C.F.R. §1.8(A)**
I hereby certify that the above correspondence is being deposited with the U.S. Postal Service with sufficient postage as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on 12-2-03.

Ann Trent
Ann Trent

Sir:

Enclosed is a copy of the Filing Receipt for United States Patent Application Serial Number 10/620,546. Please note the correction marked in red. Please correct the title to **Focused Ion Beam Endpoint Detection Using Charge Pulse Detection Electronics**. Enclosed is a copy of the declaration/oath and the first page of the specification showing the correct title.

Applicants respectfully request a corrected Filing Receipt and believe that Applicants did not cause this error and that no fee is due. However, this letter authorizes any necessary charges to the deposit account of Texas Instruments Incorporated, Account No. 20-0668.

Respectfully submitted,

Peter K. McLarty
Attorney for Applicants
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Texas Instruments Incorporated
P.O. Box 655474, MS 3999
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PKM



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|---|---|---|---|---|---|---|---|
| 10/620,546 | 07/16/2003 | 2829 | 804 | TI-34625 (1962-04800) | 5 | 23 | 3 |

**CONFIRMATION NO. 8435**

23494
TEXAS INSTRUMENTS INCORPORATED
P O BOX 655474, M/S 3999
DALLAS, TX 75265

**FILING RECEIPT**

*OC000000011046533*

Date Mailed: 10/16/2003

Receipt is acknowledged of this regular Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please write to the Office of Initial Patent Examination's Filing Receipt Corrections, facsimile number 703-746-9195. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections (if appropriate).**

**Applicant(s)**

Sivaramakrishna Kolachina, Sugarland, TX, INDIA;
Srikanth M. Perungulam, Houston, TX;

**Assignment For Published Patent Application**

Texas Instruments Incorporated, Dallas, TX;

**Domestic Priority data as claimed by applicant**

**Foreign Applications**

**If Required, Foreign Filing License Granted:** 10/15/2003

**Projected Publication Date:** 01/20/2005

**Non-Publication Request:** No

**Early Publication Request:** No

**Title**

Focused ion beam endpoint detection using charge ~~plus~~ pulse detection electronics



KV

Preliminary Class

324

# LICENSE FOR FOREIGN FILING UNDER
# Title 35, United States Code, Section 184
# Title 37, Code of Federal Regulations, 5.11 & 5.15

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ATTORNEY'S DOCKET NO.
TI-34625 (1962-04800)



# APPLICATION FOR UNITED STATES PATENT DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I declare that my residence, post office address and citizenship are as stated below next to my name; that I verily believe that I am the original, first and sole inventor if only one name is listed below, or an original, first and joint inventor if plural inventors are named below, of the subject matter which is claimed and for which a patent is sought on the invention entitled as set forth below, which is described in the attached specification; that I have reviewed and understand the contents of the specification, including the claims, as amended by any amendment specifically referred to in the oath or declaration; that no application for patent or inventor's certificate on this invention has been filed by me or my legal representatives or assigns in any country foreign to the United States of America; and that I acknowledge my duty to disclose information which is material to the patentability of this application in accordance with Title 37, Code of Federal Regulations, Section 1.56;

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

TITLE OF INVENTION:

**FOCUSED ION BEAM ENDPOINT DETECTION USING CHARGE PULSE DETECTION ELECTRONICS**

POWER OF ATTORNEY: I HEREBY APPOINT THE FOLLOWING ATTORNEYS TO PROSECUTE THIS APPLICATION AND TRANSACT ALL BUSINESS IN THE PATENT AND TRADEMARK OFFICE CONNECTED THEREWITH

**Practitioners at Customer Number: 23494**

| SEND CORRESPONDENCE TO: | | DIRECT TELEPHONE CALLS TO: |
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| COUNTRY OF CITIZENSHIP:<br>India | COUNTRY OF CITIZENSHIP:<br>India | COUNTRY OF CITIZENSHIP: |
| SIGNATURE OF INVENTOR: | SIGNATURE OF INVENTOR: | SIGNATURE OF INVENTOR: |
| DATE: 7/15/03 | DATE: 07/15/03 | DATE: |

105105.01/1962.04800

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# FOCUSED ION BEAM ENDPOINT DETECTION USING CHARGE PULSE DETECTION ELECTRONICS

## BACKGROUND

[0001] Integrated circuits, comprised of numerous circuit elements, are typically fabricated in layers on the surface of a semiconductor wafer. Many fabrication processes are repeated numerous times, constructing layer after layer until fabrication is complete. Metal layers (which typically increase in number as device complexity increases) include patterns of conductive material that are insulated from one another vertically by alternating layers of insulating material. Vertical, conductive tunnels called "vias" typically pass through insulating layers to form conductive pathways between adjacent conductive patterns.

[0002] Periodically, an electrical malfunction or design flaw is found when an integrated circuit is electrically tested. Implementing a design change can be an extensive process. Typically, among other tasks, a circuit designer may have to produce new schematics, a vendor may need to supply new masks or other fabrication supplies, and wafer fab personnel may need to implement new process flows on various equipment sets. Rather than commencing a lengthy and costly redesign process only to have the new design fail in operation, it is often preferable to modify and test a physical sample of the integrated circuit prior to formalizing the modified design.

[0003] Integrated circuit failure analysis often involves the use of several different types of equipment, or tools. One of the most versatile failure analysis tools is the focused ion beam (FIB) apparatus, which can facilitate device modification. The FIB is a tool including one or more ion columns for generating ion beams. In general, the FIB is used for performing integrated circuit repair, editing, cross-sectioning, modifications to aid microprobing of the integrated circuit, and